

In re Patent Application of:
ROSSIN ET AL.
Serial No. 09/518, 421
Filed: **MARCH 03, 2000**

REMARKS

Claims 1 to 33 are currently pending. Claims 15, 23 and 26 have been cancelled. Claims 34 to 36 have been added.

Claims 1, 10 to 15, 17, 32 and 33 have been rejected under the provisions 35 U.S.C. § 103(a) as being unpatentable over United States Patents No. 6,229,947 (Vawter et al). Claims 1 to 9 and 16 to 31 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Vawter et al in view of United States Patents Nos. 6,058,128 (Ventrudo) and 6,094,515 (Miki et al).

The Advisory Action states that the Applicant's previous amendments, filed February 13, 2004, include limitations that would require new searching, and include improper reference to the drawings. Accordingly, a Request for Continued Examination has been filed accompanied with the present response.

Furthermore, the claims of the application have been amended to overcome the objections of the Examiner and to better define the invention in light of the prior art. In particular, claims 1 and 17 have been amended to include the feature "a threshold power of the laser, at which a first lateral optical mode begins to oscillate, is above 400mW". As described on page 6, lines 5 to 28, it is the oscillation of the first lateral mode that cause a "kink" in the output power vs current curve. Accordingly, ensuring that the threshold power is above 400mw, and preferably above 1000mW, ensures that there will be no "kink" in the power vs current curve.

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New claim 36 defines this feature a different way by claiming that the power output increases monotonically with injection current, i.e. no kink, without specific reference to a curve. This feature is clearly disclosed on Page 10, lines 7 to 12 of the description.

The purpose of the present invention is to permit a relatively low loss transformation of the fundamental mode from the narrow region to the wide region (Page 7, lines 11 to 13), particularly at high power applications, to eliminate a "kink" in the output power vs current curve. Reduction in waveguide width reduces the available output power; however, if the waveguide is not sufficiently narrow as to discriminate against higher order modes, then the output may include one or more higher order lateral modes. Therefore, a limited expansion from the narrow input section to the wider output section via a gradually expanding middle region is a novel and non-obvious feature of the present invention.

The tapered rib fiber coupler disclosed in the Vawter et al reference tapers from the input end to the output end. See col 6 lines "The rib has a non-linear taper between its wide section 75 and its narrow section 78...". In Figure 17A, the output face 73 is clearly identified next to the narrow section 78. The purpose of the device in the Vawter et al patent is to match the optical mode of the laser with that of an output fiber; while the device of the present invention is concerned with kink-free operation at higher powers. As disclosed on Page 11, lines 18 to 24, this type of "reverse tapered" device shows a "kink" below 200 mW. Accordingly, Applicant respectfully disagrees with the Examiner's statement that a simple rearrangement of the features disclosed in the

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Vawter et al reference will provide the same result as the present invention. Even if the far field beam profiles are similar, the device disclosed in the Vawter et al reference will not provide "kink" free current vs output power curves for output power above 400 mW.

As such, it is respectfully submitted that all of the claims remaining in the application are in condition for allowance. Early and favorable consideration would be appreciated.

Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account No. 50-1465 and please credit any excess fees to such deposit account.

Respectfully submitted,



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